

What is claimed is:

1 1. An apparatus for automatic identification of an
2 external audio input/output device, comprising:
3 an audio jack;
4 a detecting device for automatically identifying the
5 external device according to an impedance of the
6 external device connected through the audio jack, and
7 generating a control signal; and
8 a multiplexer for selectively coupling the external device
9 to one of a plurality of audio circuits according to
10 the control signal.

1 2. The apparatus as claimed in claim 1, wherein the
2 external device is for inputting an audio signal or outputting
3 an audio signal.

1 3. The apparatus as claimed in claim 1, wherein the
2 detecting device and the external device are connected to be a
3 potential divider, and the control signal is the voltage signal
4 outputted from one of a plurality of dividing points of the
5 potential divider.

1 4. The apparatus as claimed in claim 3, wherein the
2 detecting device is for selectively connecting one of a plurality
3 of resistors of the detecting device to form the potential
4 divider.

1 5. The apparatus as claimed in claim 3, further comprising
2 an Analog to Digital Converter (ADC) for converting the control
3 signal to be a digital signal.

1 6. The apparatus as claimed in claim 5, further comprising
2 a controlling unit for determining the type of the external device
3 according to the digital control signal, and the multiplexer
4 selectively couple the external device to the audio input circuit
5 or the audio output circuit via the audio jack according to the
6 digital control signal.

1 7. The apparatus as claimed in claim 6, wherein the
2 controlling unit disconnects the connection between the
3 detecting device and the external device according to the digital
4 controlling data.

1 8. The apparatus as claimed in claim 6, wherein the
2 controlling unit is for detecting whether or not the external
3 device is connected to the audio jack, and controlling the
4 connection between the detecting device and the external device
5 accordingly.

1 9. The apparatus as claimed in claim 1, wherein the
2 detecting device determines the type of the external device
3 through comparing the impedance of the external device with a
4 recognition parameter.

1 10. The apparatus as claimed in claim 9, wherein the
2 recognition parameter is stored in a registry, or a programmable
3 memory, or a software file.

4 11. The apparatus as claimed in claim 1, wherein each of
5 the audio circuits is either an audio input circuit or an audio
6 output circuit.

1 12. A method for automatic identification an external
2 audio input/output device, comprising the steps of:
3 measuring an impedance of the external device connected with
4 an audio jack;
5 generating a controlling signal according to the impedance
6 of the external device; and
7 selectively coupling one of a plurality of audio circuits
8 to the external device via the audio jack according
9 to the controlling signal.

1 13. The method as claimed in claim 12, wherein step of
2 measuring further comprises the steps of:
3 connecting a detecting circuit with the external device to
4 form a potential divider;
5 measuring an output voltage of the potential divider; and
6 converting the output voltage to the controlling signal.

1 14. The method as claimed in claim 13, further comprising
2 disconnecting the connection between the detecting circuit and
3 the external device after measuring the impedance of the external
4 device.

1 15. The method as claimed in claim 13, wherein the step of
2 formation the potential divider further comprises selectively
3 connecting one of a plurality of resistors to the external device
4 individually.

1 16. The method as claimed in claim 13, wherein the step of
2 converting the output voltage into a corresponding controlling
3 signal comprises comparing the output voltage with a recognition
4 parameter.

1 17. The method as claimed in claim 16, wherein the
2 recognition parameter is programmable.

3 18. The method as claimed in claim 12, wherein each of the
4 audio circuits is either an audio input circuit or an audio output
5 circuit.

1 19. A method for automatically identifying an external
2 audio input/output device, comprising the steps of:
3 detecting whether the external device is connected to an
4 audio jack;
5 measuring an impedance of the external device;
6 converting the measured impedance to a corresponding
7 controlling signal; and
8 selectively coupling one of a plurality of audio circuits
9 to the external device via the audio jack according
10 to the controlling signal.

1 20. The method as claimed in claim 19, wherein the step of
2 measuring comprises the steps of:
3 connecting a detecting circuit with the external device to
4 form a potential divider;
5 measuring an output voltage of the potential divider; and
6 converting the output voltage into the controlling signal.

1 21. The method as claimed in claim 20, further comprising
2 disconnecting the connection between the detecting circuit and
3 the external device after measuring the impedance of the external
4 device.

1 22. The method as claimed in claim 20, wherein the step of
2 forming the potential divider further comprises selectively
3 connecting one of a plurality of resistors to the external device
4 one individually.

5 23. The method as claimed in claim 19, wherein each of the
6 audio circuits is either an audio input circuit or an audio output
7 circuit.